UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1201 ELM STREET, SUITE 500
DALLAS, TEXAS 75270

Office of the Regional Administrator

DEC 2 0 2019

Ms. Jolene Slowen
Deputy Directory
Environmental Health Department
City of Albuquerque
Post Office Box 1293
Albuquerque, New Mexico 87103

Dear Ms. Slowen:

This letter responds to the City of Albuquerque's (COA) Exceptional Events Demonstrations, dated October 11, 2019. The demonstrations request to exclude Particulate Matter less than or equal to 10 micrometers in diameter (PM_{10}) data associated with exceptional event claims on various dates during 2018. The COA determined that the high wind dust events caused exceedances of the PM_{10} National Ambient Air Quality Standard level of 150 $\mu g/m^3$ at the monitor and on the dates listed in the enclosure.

In 2016, the U.S. Environmental Protection Agency revised the Exceptional Events Rule (EER) found in sections 40 CFR 50.14 and 40 CFR 51.930. See, "Treatment of Data Influenced by Exceptional Events," 81 FR 68216 (Oct. 3, 2016). After careful consideration of the information provided, the EPA concurs, based on the information provided and a weight of evidence analysis, that the COA has met the applicable exceptional event demonstration requirements set forth in 40 CFR 50.14(a)(2) and (b)(5). In addition, the COA has met the schedule and procedural requirements in section 50.14(c). The EPA has reviewed the documentations provided to demonstrate the exceedances at the subject monitors during 2018 meet the criteria for an exceptional event under the EER. The basis for our concurrence is set forth in the enclosed technical support document. My staff will enter "concurrence flags" for these data into the EPA's Air Quality System (AQS) data repository.

The EPA concurrence is a preliminary step in the regulatory process for actions that may rely on the dataset containing the event-influenced data and does not constitute final agency action. If the EPA takes a regulatory action that is affected by exclusion of the subject data, the EPA will publish notice of its proposed action in the Federal Register. The EPA's concurrence letter and accompanying technical support document will be included in the record as part of the technical basis for that proposal. When the EPA issues that regulatory action, it will be a final agency action subject to judicial review.

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If you have any questions or wish to discuss this matter further, please have your staff contact Ms. Frances Verhalen, Chief, Air Monitoring/Grants Section, (214) 665-2172.

Sincerely,

Ken McQueen
Regional Administrator

Enclosure

cc: Dwayne Salisbury, COA

Technical Review of 2018 PM_{10} Exceptional Event Demonstrations, dated October 11, 2019

Introduction

The U.S. Environmental Protection Agency (EPA) promulgated the original Exceptional Events Rule (EER) in 2007, hereafter referred to as "2007 EER," pursuant to the 2005 amendment of the Clean Air Act (CAA) Section 319. The 2007 EER was in effect until September 30, 2016, when a revised EER was promulgated by the EPA (See, 81 FR 68216, October 3, 2016) hereafter referred to as "2016 EER." The subject Exceptional Event Demonstrations, hereafter referred to as "demonstrations," were submitted in accordance with the 2016 EER. The Exceptional Event federal regulations are found at 40 CFR 50.14.

In the demonstrations, the City of Albuquerque (COA) requests the EPA concur that four measurements of particulate matter with a diameter less than or equal to 10 micrometers (PM_{10}) which exceed the National Ambient Air Quality Standard (NAAQS) be excluded from the data set used for certain regulatory decisions, as outlined in the 2016 EER. After considering the information provided and using a weight of evidence analysis as provided in the demonstrations, the EPA shall concur or non-concur with the air agency's demonstrations. For the purposes of this document, there is a "demonstration" for each exceedance day or wind event.

Procedural Requirements

The 2016 EER includes certain scheduling and procedural requirements as specified in 40 CFR 50.14(c) that an air agency must follow: 1. Public Notification; 2. Initial Notification of the Potential EE; 3. Submission of the Demonstrations. For example, data claimed to be due to an exceptional event must be flagged in the Air Quality System (AQS) database. The air agency is also to provide the EPA with an initial notification for the potential exceptional event and conduct a 30-day public comment period for the demonstrations. Failure to meet the procedural requirements results in the EPA non-concurrence with the AQS flagging of the exceedances.

In accordance with 40 CFR 50.14(c), the COA flagged the subject exceedances in AQS with "High Winds", i.e., "RJ", qualifier flags. The COA submitted an initial notification to the EPA on May 23, 2019. The COA solicited public input on the draft demonstrations from September 11, 2019, through October 11, 2019. The COA met the scheduling and procedural provisions of the 2016 EER for the subject exceedances.

Required Demonstration Content

In accordance with 40 CFR §50.14(c)(3), a demonstration to justify data exclusion must address the criteria discussed below.

1) A narrative conceptual model
   a) Pursuant to 40 CFR §50.14(c)(3)(iv)(A), the demonstration shall provide a narrative conceptual model that describes the event(s) and how emissions from the event(s) led to the exceedance or violation at the affected monitor. The demonstration(s) shall include a narrative conceptual model for each exceedance.

2) Evidence there was a clear causal relationship between exceedance and event
   a) Pursuant to 40 CFR §50.14(c)(3)(iv)(B), the demonstration shall provide evidence that there was a clear causal relationship between the measurement under consideration and the event claimed

to have affected the air quality in the area. The clear causal criterion is addressed below for each exceedance.

3) Analyses comparing event influenced concentrations to other concentrations at the monitors.
   a) Pursuant to 40 CFR §50.14(c)(3)(iv)(C), the demonstration shall provide an analysis of the exceedance compared to measurements at the same monitor at other times. The historical data comparison criterion is addressed below for each exceedance.

4) Evidence event was not reasonably controllable or preventable.
   a) Pursuant to 40 CFR §50.14(c)(3)(iv)(D), the demonstration shall provide evidence the event was both not reasonably controllable and not reasonably preventable.
      i) Not Reasonably Preventable - In accordance with 40 CFR §50.14(b)(5)(iv), the air agency will not be required to provide a case-specific justification that the event was not reasonably preventable for a high wind dust event. As discussed in more detail below for the clear causal criterion that includes the not reasonably preventable criterion, the COA showed that a high wind dust event caused each exceedance. Therefore, the COA was not required to provide a case-specific justification for the not reasonably preventable criterion.
      ii) Not Reasonably Controllable, Undisturbed Land Sources - A high wind threshold is defined by 40 CFR §50.1(q) as the minimum wind speed capable of causing particulate matter emissions from natural undisturbed lands in the area affected by a high wind dust event. The COA showed wind speeds were sustained above the high wind threshold for each exceedance. Therefore, emissions from upwind undeveloped lands met the not reasonably controllable criterion and could not have been reasonably controlled.
      iii) Not Reasonably Controllable, Anthropogenic Sources – This criterion is addressed below for each exceedance.

5) Evidence the event was caused by human activity that is unlikely to recur or was a natural event.
   a) According to 40 CFR §50.14(c)(3)(iv)(E), the demonstration must provide evidence that the event was a human activity unlikely to recur or was a natural event. In accordance with 40 CFR §50.14(b)(5)(ii) and (b)(8), a high wind dust event is considered a natural event if the demonstration shows all anthropogenic sources are reasonably controlled.
   b) As discussed below for the clear causal criterion, the COA showed that a high wind dust event caused each exceedance. Also as discussed below for the reasonable control of anthropogenic sources criterion, the COA showed that the anthropogenic sources were reasonably controlled for each exceedance. Therefore, the high wind dust event that caused each exceedance is a natural event as defined in 50.14(b)(5)(ii).

6) Records of a 30-day public comment period with copies of and responses to comments.
   According to 40 CFR §50.14(c)(3)(v)(A), the demonstration must provide evidence the air agency conducted a 30-day comment period and addressed any comments disputing or contradicting the factual evidence provided the demonstration. Appendix E of the demonstrations includes records of the 30-day comment period. The COA did not receive comments during the public comment period.

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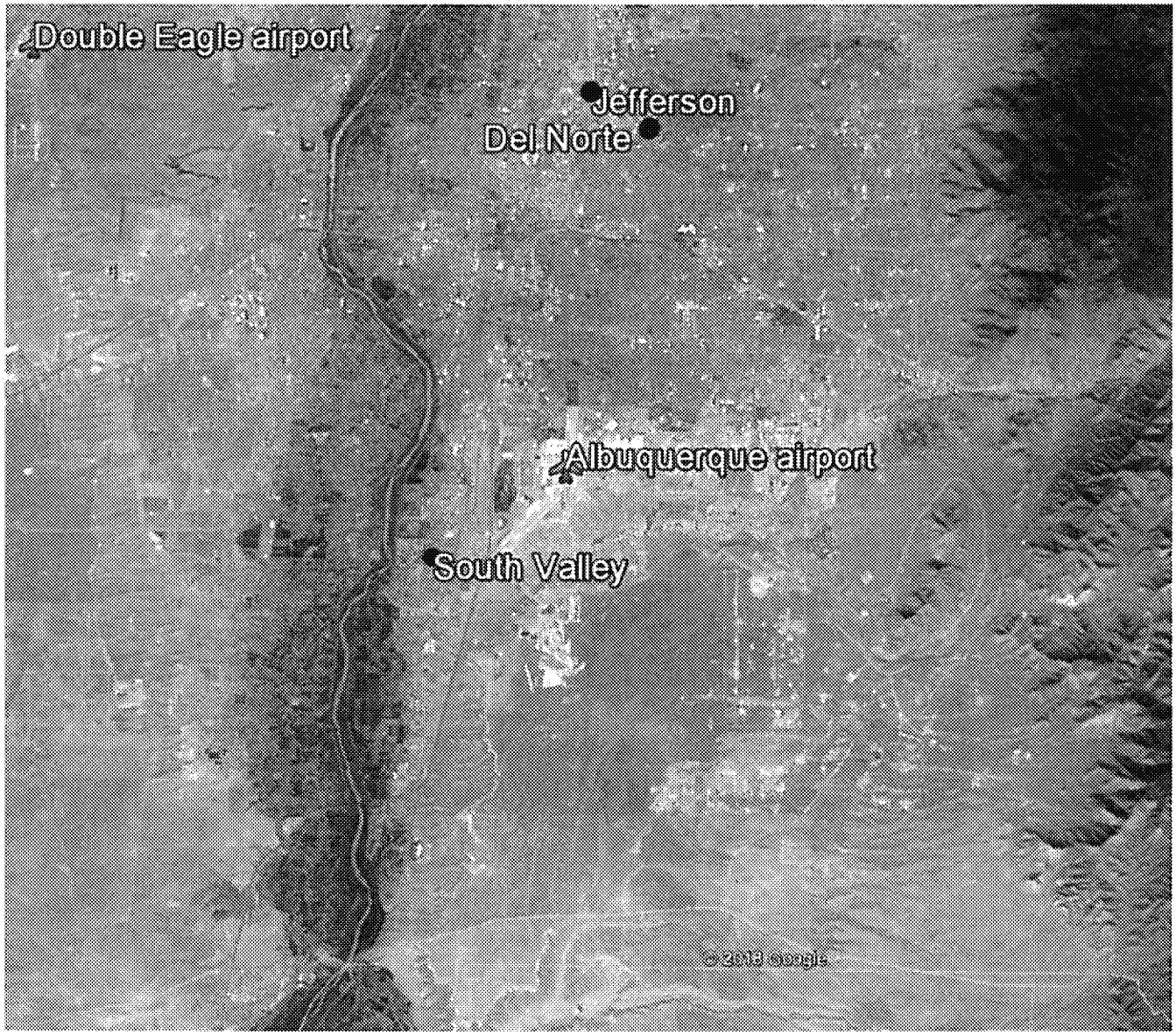
Summary

The COA claims wind events in 2018 caused 4 exceedances of the NAAQS level from 1 monitor on 1 site in Bernalillo County, New Mexico. The measurements exceeded the NAAQS level of 150 micrograms per cubic meter ($\mu g/m^3$) for particulate matter with a diameter less than or equal to 10 micrometers (PM_{10}) using 24 hours averaging time.

Exceedance Day	South Valley 2ZV 35-001-0029-81102-3
January 15, 2018	157 $\mu g/m^3$
February 12, 2018	229 $\mu g/m^3$
April 19, 2018	283 $\mu g/m^3$
July 11, 2018	200 $\mu g/m^3$

Table of 2018 PM_{10} Exceedances in Demonstration



Map of area, monitor sites, and local airports

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During 2018, the COA operated three PM_{10} monitor sites in Bernalillo County (Del Norte 2ZM 35-001-0023, Jefferson 2ZS 35-001-0026, and South Valley 2ZV 35-001-0029).

The COA and New Mexico Environment Department (NMED) share regulatory responsibility for ambient air monitoring in the Albuquerque area. COA operates the monitors in Bernalillo County. Any monitoring in the other counties in the area, e.g., Sandoval, would be performed by the state.

For each exceedance, the demonstrations include information about the COA health alerts and other public outreach efforts about blowing dust hazards from the forecasted wind incidents.

General Background on EPA Review

The COA claims the exceedances were caused by high wind dust events. A high wind dust event is defined by 40 CFR §50.1(p) as an event that includes the high-speed wind and the dust the wind entrains and transports to a monitoring site. On April 4, 2019, the EPA released new guidance for the preparation of demonstrations for high wind dust events (*Guidance on the Preparation of Demonstrations in Support of Requests to Exclude Ambient Air Quality Data Influenced by high wind dust events Under the 2016 Exceptional Event Rule*, EPA-457/B-19-001, April 2019).

A high wind threshold is defined by 40 CFR §50.1(q) as the minimum wind speed capable of causing particulate matter emissions from natural undisturbed lands in the area affected by a high wind dust event. As stated in the 2016 EER (81 FR 68257-68258), the threshold clarified the "level of evidence needed to demonstrate not reasonably controllable" and "should be representative of conditions that are capable of overwhelming reasonable controls…on anthropogenic sources and/or causing emissions from natural undisturbed areas." As specified 40 CFR §50.14(b)(5)(iii), the EPA will accept a high wind threshold for the COA area of New Mexico of a sustained wind of 25 miles per hour (mph). Air agencies can also use an EPA approved alternate area-specific threshold. There is no alternate area-specific high wind threshold for Bernalillo County.

Per the April 2019 high wind dust event guidance, "[w]hen evaluating measured sustained wind speeds, EPA will generally accept that the sustained wind was at or above the area-specific high wind threshold in cases where there was at least one full hour in which the hourly average wind speed was at or above the area specific high wind threshold. EPA will consider a sustained wind speed based on shorter averaging times (e.g., 1 to 5 minutes) on a case-by-case basis. EPA may also consider multiple occurrences of high wind measured at shorter averaging times as part of the weight-of-evidence demonstration, even if the hourly average was not above the threshold." [pg. 13]

"Meteorological events involving high temperatures or lack of precipitation (*i.e.*, … drought) also do not directly cause pollutant emissions and are not considered exceptional events. However, [these] conditions …may promote occurrences of…high wind dust events, which do directly cause emissions." [pg. 4]

"Cases where dust was entrained by sustained winds at or above the high wind threshold upwind of the monitor and …transported at lower wind speeds to the monitor could still qualify for the basic controls analysis category, but in such cases, the state should show that sustained winds were at or above the… threshold in the expected source area. Cases of long-range transport (*e.g.*, >50 miles) could still qualify for a basic controls analysis but air agencies may need to include supplementary analyses such as a trajectory analysis…or satellite plume imagery…" [pg 16, footnote 28]

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Per the Guidance, the EPA intends to use a tiered approach for evaluating whether a demonstration shows that a high wind dust event and its emissions were not reasonably controllable. Large-scale and high-energy high wind dust events are Tier 1. Tier 2 events have sustained wind speeds at or above the high wind threshold. Tier 3 are all other events. None of the subject events qualify as a Tier 1 event. [See pgs. 14-16]

Per the concurrence prohibition of 40 CFR 50.14(b)(9), the EPA cannot concur on AQS flagged exceedances unless the Mitigation Plan requirement has been met. Air agencies are required to submit Mitigation Plans for areas with known, recurring events (See 40 CFR 51.930). Applying the framework of three events (or three seasons with multiple events of a common type) in a 3-year period, we identified those areas that have experienced recurring events during the timeframe from January 1, 2013 through December 31,2015, and required a Mitigation Plan in the first round. The EPA determined Bernalillo County did not meet the eligibility criteria, i.e., "historically documented or known seasonal events" and is not currently subject to the Mitigation Plan requirements. The next national review round for additional areas subject to the Mitigation Plan requirements is planned to start in 2021. Therefore, the concurrence prohibition does not bar the EPA from concurring with the subject exceedances.

Other General Information

For the purposes of this document, the use of "page x" or "figure x" is a reference to a page or figure in the demonstrations. The COA selected to provide a separate demonstration document for each exceedance.

NOAA provides airport meteorological data (www.ncdc.noaa.gov/cdo-web/datatools/lcd) and reported storm events information (www.ncdc.noaa.gov/stormevents/) which informs the technical review of the demonstrations. Another tool used in the technical review, i.e., the NOAA HYSPLIT back trajectory model, is available at (ready.arl.noaa.gov/HYSPLIT_traj.php).

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JANUARY 15, 2018

The exceedance occurred on January 15, 2018, hereafter referred to as the "exceedance day," at a monitoring site in Bernalillo County. The monitor and exceedance are:

Site Name	Monitor AQS ID	Exceedance, Measurement
South Valley	35-001-0029-81102-3	157 $\mu g/m^3$

JANUARY 15, 2018, EXCEEDANCE DAY, Clear Causal Relationship.
In the demonstration for the January 15, 2018, exceedance, COA states "The event originated from the east from…, traveling across the eastern counties of New Mexico, and directly impacted the South Valley-2ZV monitoring site."

Figure 5 on page 18 shows the wind speed and PM_{10} measurements from the South Valley monitor site on the exceedance day. Both wind and PM_{10} data are in minute intervals. The graph shows that for most of the time between about 4:30 PM (at about 987 minutes) and midnight wind speeds exceeded 25 mph.

Figure 1 on page 12 shows the PM_{10} measurements from the South Valley monitor site on the exceedance day. The graph also shows wind speed data from the National Weather Service (NWS). Both wind and PM_{10} data are in minute intervals. The graph shows that for some of the time between about 5:45 PM (1065 minutes) and midnight wind speeds exceeded 25 mph.

Table 4 and the narrative on page 17 show that on the exceedance day there were a total of 220 minutes, or about 3.7 hours, where wind speeds exceeded 25 mph on the exceedance day. This information is also shown graphically in Figure 6 on page 19.

Tables and figures on pages 13, 14, and 34, provide Albuquerque airport weather data on the exceedance day. The airport is about 2.5 miles northeast of South Valley. The winds at the airport were mild until about 2 PM when they started to elevate. Wind speeds exceeded 25 mph from about 5 PM to midnight, except for a short period at about 8 PM where the winds dipped to 24 mph. During this period, the winds were from the east and east southeast, with gusts reaching 41 mph. Visibility was not adversely impacted.

On the exceedance day, winds at the Double Eagle airport were mild for most of the day. From about 3 PM to 4:30 PM, the winds picked up and reached a peak of 16 mph. During this time, the winds were from the southeast and no gusts were recorded. The airport is about 12 miles northwest of South Valley.

On the exceedance day, AQS data shows the hourly wind speeds at the Del Norte monitor site were mostly mild. From about 3 PM to 5 PM the winds rose to a maximum of 13 mph. Del Norte is about 9 miles north northeast of South Valley. On the exceedance day, the Del Norte and Jefferson PM_{10} monitors reported 24 hours measurements close to the monitor averages: Del Norte 23 $\mu g/m^3$ (average 18 $\mu g/m^3$), and Jefferson 39 $\mu g/m^3$ (average 27 $\mu g/m^3$).

Figure 3 on page 16 shows hourly PM_{10} measurements at South Valley on the exceedance day. The PM_{10} measurements correlate with elevated winds measured at South Valley.

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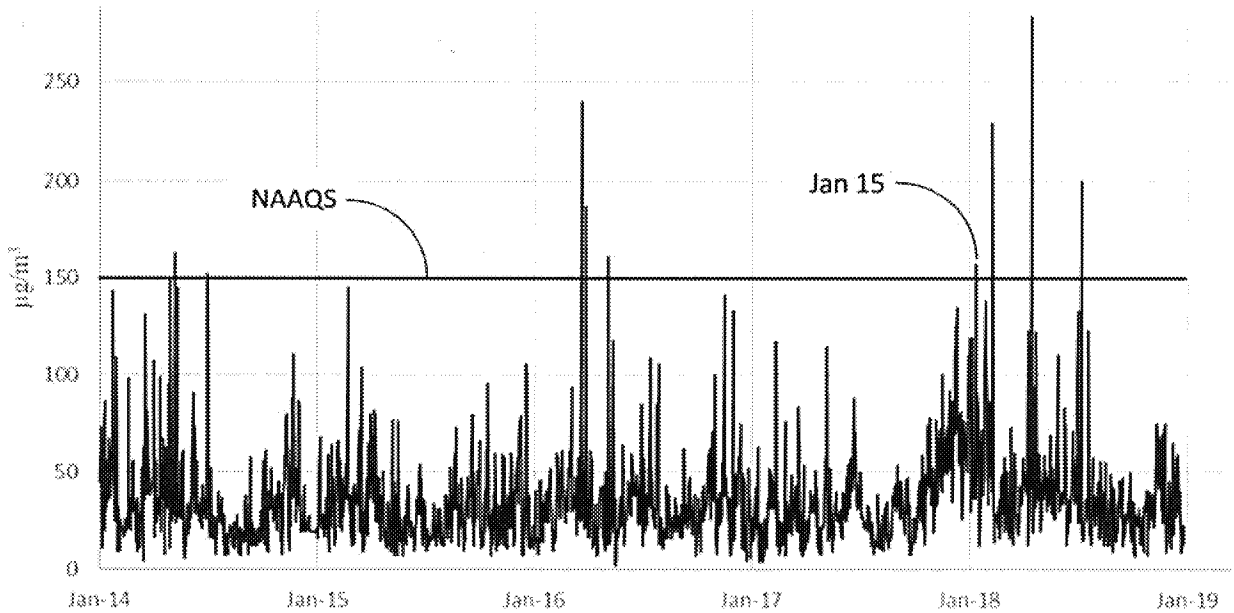
There are independent weather reports and wind data which showed that on the exceedance day the area experienced a wind incident. The demonstration showed that elevated PM_{10} measurements at the monitor correlated with elevated wind speeds measured on the exceedance day. The likelihood that anthropogenic sources caused the exceedance are discussed below in the Not Reasonably Controllable criterion. Based on the EPA review of the clear causal relationship criterion and using a weight of evidence approach to the information provided, the COA sufficiently showed that a specific high wind dust event clearly caused the PM_{10} exceedance at the monitor on the exceedance day.

JANUARY 15, 2018, EXCEEDANCE DAY, Analyses comparing event concentrations to other concentrations at the monitor.
The graph below reflects the 24-hour measurements at the monitor from 2014 to 2019. The site measurements for the days surrounding the exceedance day did not approach the NAAQS level. The measurement on the exceedance day is above the 95th percentile of historical site data.



24-Hour Measurements, South Valley PM_{10} Monitor, 35-001-0029-81102-3

Based on the analyses and statistics, the comparison of the exceedances to the historical concentrations of PM_{10} at the monitor indicates a deviation from normal or typical concentrations occurred on the exceedance day. This supports the clear causal relationship between the exceedance and the wind incident on the exceedance day.

JANUARY 15, 2018, EXCEEDANCE DAY, Not reasonably controllable or preventable.
See discussion above for additional information on the requirements for the EPA review and analysis of this overall criteria.

Reasonably Controllable, Anthropogenic Sources – The 25-mph high wind threshold is the minimum wind speed capable of overwhelming reasonable controls on anthropogenic sources. As discussed previously for the clear causal criterion, wind speeds at South Valley exceeded the threshold for multiple hours on the exceedance day. These elevated winds were from the east and east southeast.

About 1 mile of developed land exists to the east of South Valley. Beyond that, further to the east, is the Kirtland military base and undeveloped arid lands managed by the National Forest Service. The Albuquerque airport is to the east northeast of South Valley. Beyond the airport, there are commercial and residential areas and then the Sandia Mountains and Tijeras Canyon managed by the National Forest Service. To the southeast of South Valley is the Kirtland military base, undeveloped arid land in Bernalillo County, and Isleta Pueblo lands.

The COA states that anthropogenic sources near South Valley "are predominately due to residential and small commercial properties with little to no vegetative cover and with the small commercial properties having no soil stabilization such as asphalt or cement paving. Other areas that also impact the area are due to off road vehicle usage to the east…"

Since 2008, there has been a fugitive dust control ordinance in effect in the Albuquerque area. On the exceedance day, there were 8 sites upwind of South Valley with fugitive dust construction permits. There were 13 upwind sites with fugitive dust programmatic permits for routine non-construction site activities (e.g., roads, easements). The permits require controls on disturbed surface dust sources. The COA believes high winds overwhelmed the controls. The ordinance includes enforcement provisions. Information about implementation and enforcement of the controls on the exceedance day was not provided. Despite this fact, during the subject high wind event, however, the emissions from the upwind undeveloped lands likely dominated the impacts at South Valley.

Figure 12 on page 35 provides the results of a NOAA HYSPLIT Model 24 hours backward trajectory. COA ran the model with the trajectories ending by 2 AM on January 16, 2018 (0900 UTC on January 16, 2018), at South Valley, with assumed elevations of at 100, 200, and 300 meters above ground level. The results show that the winds could have been near ground level in the Texas panhandle and in New Mexico's De Baca and Quay Counties to the east prior to reaching South Valley. Figure 13 on page 31 shows De Baca and Quay Counties experienced 37 mph and 31 mph winds, respectively, on the exceedance day. The counties, however, are more than 100 miles from Albuquerque which increases the likelihood any entrained particles would settle out of suspension due to gravity before reaching South Valley.

Areas beyond Bernalillo County are outside the air agency's jurisdiction. The four Tribal Pueblos, and federal lands (e.g., military, forest, refuge, monument) in Bernalillo County are also outside the air agency's jurisdiction. The air agency is not required to address the reasonably controllable criterion for sources outside its jurisdiction, 40 CFR 50.14(b)(8)(vii).

Based on the limited scope of potential anthropogenic upwind sources, the controls on any upwind sources within the COA jurisdiction, and the likely dominating emissions from high winds on upwind undeveloped arid lands, the demonstration sufficiently showed that potentially contributing anthropogenic activities were reasonably controlled on the exceedance day.

FEBRUARY 12, 2018

The exceedance occurred on February 12, 2018, hereafter referred to as the "exceedance day," at a monitoring site in Bernalillo County. The monitor and exceedance are:

Site Name	Monitor AQS ID	Exceedance, Measurement
South Valley	35-001-0029-81102-3	229 $\mu g/m^3$

FEBRUARY 12, 2018, EXCEEDANCE DAY, Clear Causal Relationship.
In the demonstration for the February 12, 2018, exceedance, COA states the event was "traveling across the south and south-eastern counties of New Mexico, and directly impacted the South Valley-2ZV monitoring site."

Figure 6 on page 19 shows the wind speed and PM_{10} measurements from the South Valley monitor site on the exceedance day. Both wind and PM_{10} data are in minute intervals. The graph shows that for most of the time between about 12:35 PM (at 755 minutes) and 5:25 PM (at 1045 minutes) wind speeds exceeded 25 mph.

Figure 1 on page 12 shows the PM_{10} measurements from South Valley on the exceedance day. The graph also shows NWS wind speed data. Both wind and PM_{10} data are in minute intervals. The graph shows that for some of the time between about 12:37 PM (at 757 minutes) and 5:17 PM (at 1037 minutes) wind speeds exceeded 25 mph.

Tables 2 and 3 on pages 13 and 14, provide Albuquerque airport weather data on the exceedance day. The airport is about 2.5 miles northeast of the South Valley site. The winds at the airport were mild until about 11 AM when they started to elevate. The winds exceeded 25 mph from about 2 PM to about 5:30 PM. During this period, the winds varied from the south southwest to the south southeast, gusts reached 44 mph, the weather type was blowing dust in vicinity (Weather Type VCBL:5 DU:5), and visibility was reduced from 10 to 9 miles. The overall weather type for the exceedance day was "Dust, volcanic ash, blowing dust, blowing sand or…obstruction" (Weather Type DU).

On the exceedance day, winds at the Double Eagle airport were mostly mild until about 10:30 AM. The winds exceeded 25 mph from about 2:30 PM to 5 PM. During this time, the winds were from the south southeast and gusts reached 45 mph. Winds stayed elevated for the rest of the evening. The airport is about 12 miles northwest of South Valley.

On the exceedance day, AQS data shows the hourly wind speeds at the Del Norte monitor site were mild until about noon when they rose to a maximum of 18 mph at 4 PM. Winds stayed elevated until about 9 PM. Del Norte is about 9 miles north northeast of South Valley. Exceedance day 24 hours measurements from the Del Norte and Jefferson PM_{10} monitors were marginally above the monitor averages: Del Norte 34 $\mu g/m^3$ (average 18 $\mu g/m^3$), and Jefferson 57 $\mu g/m^3$ (average 27 $\mu g/m^3$).

The NWS issued an advisory about potential "gusty winds" in the Albuquerque area on the exceedance day (page 41).

Figure 3 on page 16 shows hourly PM_{10} measurements at South Valley on the exceedance day. The PM_{10} measurements correlate with elevated winds measured at South Valley.

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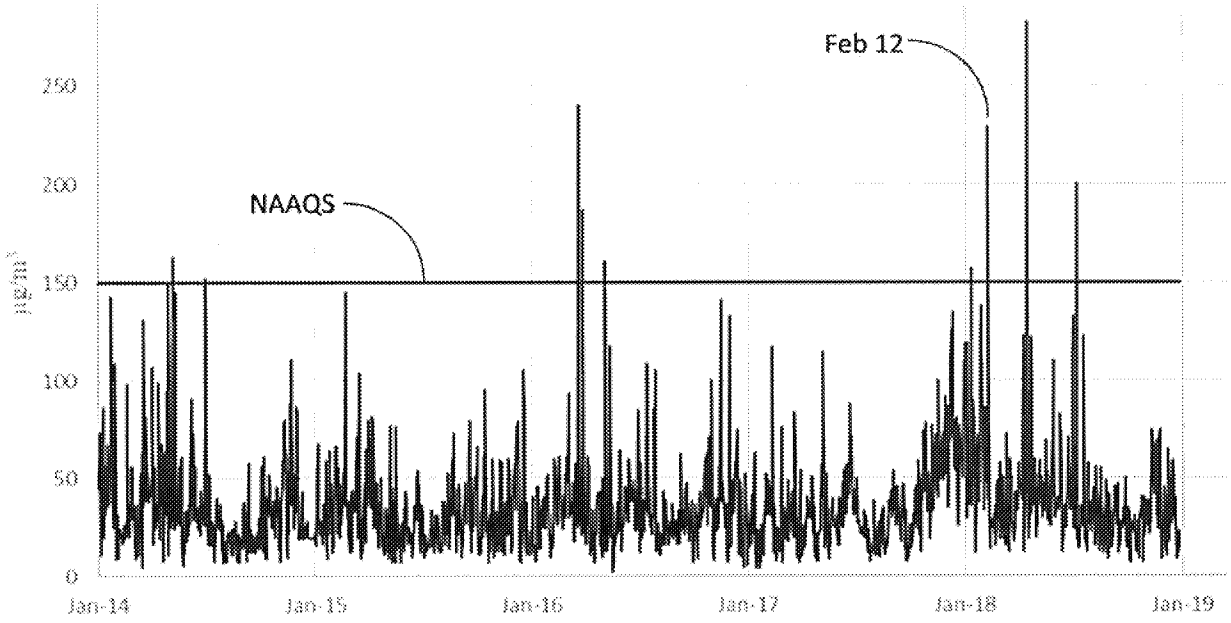
Figure 11 on page 24 graphs the hourly PM_{10} measurements from Del Norte 2ZM, Jefferson 2ZS, and South Valley 2ZV, on the exceedance day. The scales used for the South Valley data and the Del Norte and Jefferson data differ by a factor of 10 but the graph allows for the evaluation of patterns and correlations. The PM_{10} measurements at the sites correlate with elevated winds measured at the area airports.

There are independent weather reports, evidence of blowing dust, and wind data which showed that on the exceedance day the area experienced a wind incident with entrained particulate matter. The demonstration showed that elevated hourly PM_{10} measurements at the monitor correlated with elevated wind speeds measured on the exceedance day. The likelihood that anthropogenic sources caused the exceedance are discussed below in the Not Reasonably Controllable criterion. Based on the EPA review of the clear causal relationship criterion using a weight of evidence approach, the COA sufficiently showed that a high wind dust event clearly caused the PM_{10} exceedance at the monitor on the exceedance day.

FEBRUARY 12, 2018, EXCEEDANCE DAY, Analyses comparing event concentrations to other concentrations at the monitor.
The graph below reflects the 24-hour measurements at the monitor from 2014 to 2019. The site measurements for the days surrounding the exceedance day did not approach the NAAQS level. The measurement on the exceedance day is above the 95th percentile of historical site data.



24-Hour Measurements, South Valley PM_{10} Monitor, 35-001-0029-81102-3

Based on the analyses and statistics, the comparison of the exceedances to the historical concentrations of PM_{10} at the monitor indicates a deviation from normal or typical concentrations occurred on the exceedance day. This supports the clear causal relationship between the exceedance and the wind incident on the exceedance day.

FEBRUARY 12, 2018, EXCEEDANCE DAY, Not reasonably controllable or preventable.
See discussion above for additional information on the requirements for the EPA review and analysis of this overall criteria.

Reasonably Controllable, Anthropogenic Sources – The 25-mph high wind threshold is the minimum wind speed capable of overwhelming reasonable controls on anthropogenic sources. As discussed previously for the clear causal criterion, wind speeds at South Valley exceeded the threshold for multiple hours on the exceedance day. These elevated winds ranged from the south southwest to the south southeast.

To the southeast of South Valley is the Kirtland military base, undeveloped arid land in Bernalillo County, and Isleta Pueblo lands. About 4 miles of developed land exists to the south of South Valley. Beyond that, further to the south, is a National Wildlife Refuge and Isleta Pueblo lands. To the southwest is the Rio Grande valley and Isleta Pueblo lands.

The COA states that anthropogenic sources near South Valley "are predominately due to residential and small commercial properties with little to no vegetative cover and with the small commercial properties having no soil stabilization such as asphalt… paving. Other areas that also impact the area are…off road vehicle usage to the east and…agricultural …to the… southwest."

Since 2008, there has been a fugitive dust control ordinance in effect in the area. On the exceedance day, there were 2 sites in the South Valley area with fugitive dust construction permits. There were 2 upwind sites with fugitive dust programmatic permits. Figures 24 through 26 on pages 47 to 49 show a high wind contractor work shutdown notice was issued at about 2 PM on the exceedance day. The permits require controls on disturbed surface dust sources. The COA believes high winds overwhelmed the controls. The ordinance includes enforcement provisions. Information about the implementation and enforcement of the controls on the exceedance day was not provided. During the subject high wind event, however, the emissions from the upwind undeveloped lands likely dominated the impacts at South Valley.

Figure 14 on page 34 indicates wind speeds met or exceeded 25 mph in some of the upwind counties to the south of Bernalillo County, on the exceedance day. Figure 16 on page 38 provides the results of a NOAA HYSPLIT Model 24 hours backward trajectory. COA ran the model with the trajectories ending at 4 PM on February 12, 2018 (2300 UTC on February 12, 2018), at South Valley. The results show that the winds could have been near ground level in Sierra County prior to reaching South Valley. Figure 14 shows there were 25 mph winds in Sierra County. Sierra County, however, is more than 100 miles from Albuquerque which increases the likelihood any entrained particles would settle out of suspension due to gravity before reaching South Valley.

Areas beyond Bernalillo County are outside the air agency's jurisdiction. The four Tribal Pueblos, and federal lands in Bernalillo County are also outside the air agency's jurisdiction. The air agency is not required to address the reasonably controllable criterion for sources outside its jurisdiction, 40 CFR 50.14(b)(8)(vii).

Based on the limited scope of potential anthropogenic upwind sources, the controls on any upwind sources within the COA jurisdiction, and the likely dominating emissions from high winds on upwind undeveloped arid lands, the demonstration sufficiently showed that potentially contributing anthropogenic activities were reasonably controlled on the exceedance day.

ED_014139_00000410-00013

APRIL 19, 2018

The exceedance occurred on April 19, 2018, hereafter referred to as the "exceedance day", at a monitoring site in Bernalillo County. The monitor and exceedance are:

Site Name	Monitor AQS ID	Exceedance, Measurement
South Valley	35-001-0029-81102-3	283 $\mu g/m^3$

APRIL 19, 2018, EXCEEDANCE DAY, Clear Causal Relationship.
In the demonstration for the April 19, 2018, exceedance, COA states the event "originated from the southeast …, traveling across the east and south-eastern counties of New Mexico, and directly impacted the South Valley-2ZV monitoring site."

Figures 1 and 7 on pages 12 and 20 show the PM_{10} measurements from the South Valley monitor site on the exceedance day. The graphs also show NWS wind speed data. Both wind and PM_{10} data are in minute intervals. The graphs indicate that except for between about 9:20 AM (at 561 minutes) and 2 PM (at 841 minutes) wind speeds generally exceeded 25 mph.

Tables and figures on pages 13, 14, 23, and 42, provide Albuquerque airport weather data on the exceedance day. The airport is about 2.5 miles northeast of South Valley. The winds at the airport exceeded 25 mph all day, except for a period from about 10 AM to 2 PM where winds dipped down to 14 mph. During the day, the winds ranged from the east to the south, and gusts reached 47 mph. At about 9 PM, visibility was reduced from 10 to 8 miles.

On the exceedance day, winds at the Double Eagle airport were mostly mild in the morning. Winds started to elevate about 9:30 AM and remained elevated throughout the day. From about 3:30 PM to 6:30 PM, the winds exceeded 25 mph. During this time, the winds were from the southeast and gusts reached 38 mph. The airport is about 12 miles northwest of South Valley.

On the exceedance day, AQS data shows the hourly wind speeds at the Del Norte monitor site were mild until about 10 AM when they started to elevate. There were 23 mph winds from 8 PM to 10 PM. Winds stayed elevated until about midnight. Del Norte is about 9 miles north northeast of South Valley. Exceedance day 24 hours measurements from the Del Norte and Jefferson PM_{10} monitors were notably above the monitor averages: Del Norte 82 $\mu g/m^3$ (average 18 $\mu g/m^3$), and Jefferson 76 $\mu g/m^3$ (average 27 $\mu g/m^3$).

The NWS April 2018 monthly weather summary mentions a "strong to high" wind in the state of New Mexico on the '17th through 19th' (www.weather.gov/abq/climonhighapr2018wxsum). The summary indicates that on the exceedance day there were gusts up to 67 mph in the mountains east of Albuquerque, sustained wind to 44 mph in the Albuquerque metro area, and a gust may have taken down power poles in the area. This is supported by the records on the NOAA Storm Event Database provided on pages 49-51, that a high wind event with gusts up to 65 mph was experienced in the Albuquerque area from 5:30 PM to 11 PM on the exceedance day.

The NWS issued an alert about potential severe weather in the Albuquerque area on the exceedance day (pages 53-55).

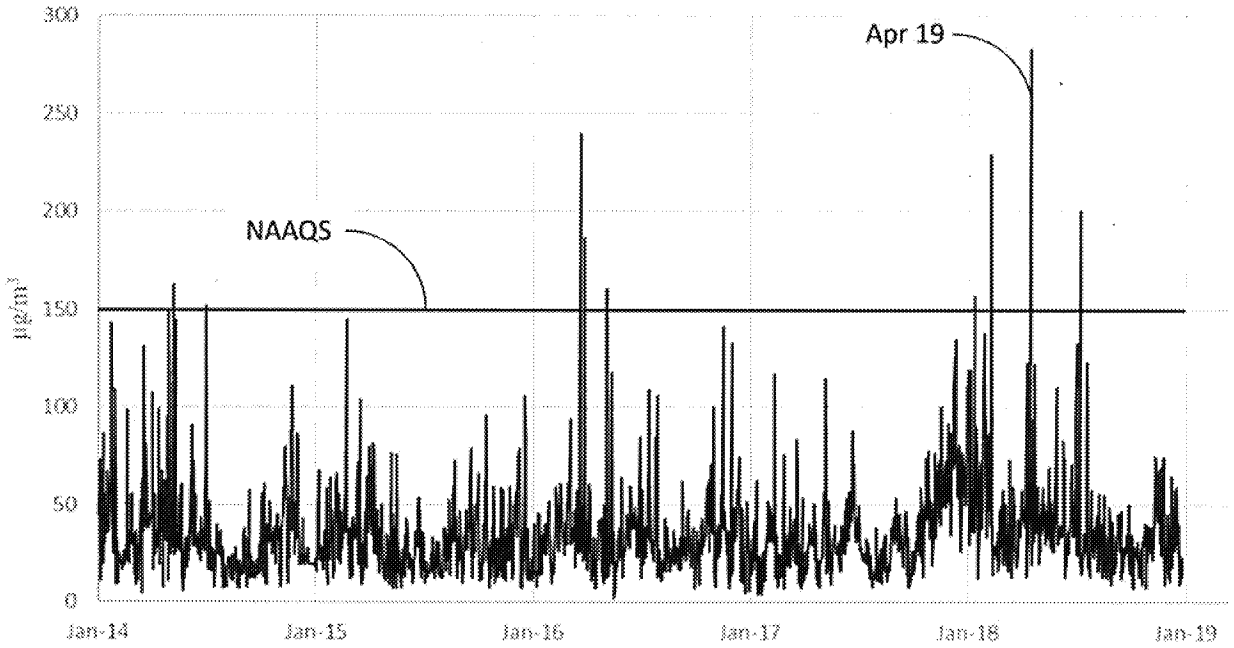
Figures 1 and 7 on pages 12 and 20 also show the elevated PM_{10} measurements from South Valley correlated with area elevated wind speeds, on the exceedance day. Figure 6 on page 19 shows a similar correlation for the $PM_{2.5}$ measurements taken at the South Valley site.

Figure 15 on page 29 graphs the hourly PM_{10} measurements from Del Norte ZM, Jefferson ZS, and South Valley ZV. The PM_{10} data correlates somewhat with elevated winds measured. The correlation is most pronounced in the evening.

There are independent weather reports, and wind data which showed that on the exceedance day the area experienced a wind incident. The demonstration showed that elevated hourly PM_{10} measurements at the monitor correlated with elevated wind speeds measured on the exceedance day. The likelihood that anthropogenic sources caused the exceedance are discussed below in the Not Reasonably Controllable criterion. Based on the EPA review of the clear causal relationship criterion using a weight of evidence approach, the COA sufficiently showed that a high wind dust event clearly caused the PM_{10} exceedance at the monitor on the exceedance day.

APRIL 19, 2018, EXCEEDANCE DAY, Analyses comparing event concentrations to other concentrations at the monitor.

The graph below reflects the 24-hour measurements at the monitor from 2014 to 2019. The site measurements for the days surrounding the exceedance day did not approach the NAAQS level. The measurement on the exceedance day are above the 95th percentile of historical site data.



24-Hour Measurements, South Valley PM_{10} Monitor, 35-001-0029-81102-3

Based on the analyses and statistics, the comparison of the exceedances to the historical concentrations of PM_{10} at the monitor indicates a deviation from normal or typical concentrations occurred on the exceedance day. This supports the clear causal relationship between the exceedance and the wind incident on the exceedance day.

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APRIL 19, 2018, EXCEEDANCE DAY, Not reasonably controllable or preventable.
See discussion above for additional information on the requirements for the EPA review and analysis of this overall criteria.

Reasonably Controllable, Anthropogenic Sources – The 25-mph high wind threshold is the minimum wind speed capable of overwhelming reasonable controls on anthropogenic sources. As discussed previously for the clear causal criterion, area wind speeds exceeded the threshold for multiple hours on the exceedance day. These elevated winds were from the southeast.

About 1 mile of developed land exists to the east of South Valley. Beyond that, further to the east, is the Kirtland military base and undeveloped arid lands managed by the National Forest Service. To the southeast is the Kirtland military base, undeveloped arid land in Bernalillo County and Isleta Pueblo lands. About 4 miles of developed land exists to the south of South Valley. Beyond that, further to the south, is a National Wildlife Refuge and Isleta Pueblo lands.

The COA states that anthropogenic sources near South Valley "are predominately due to residential and small commercial properties with little to no vegetative cover and with the small commercial properties having no soil stabilization such as asphalt or cement paving. Other areas that also impact the area are due to off road vehicle usage to the east…"

Since 2008, there has been a fugitive dust control ordinance in effect in the area. On the exceedance day, there were 2 sites in the South Valley area with fugitive dust construction permits. There were 15 upwind sites with fugitive dust programmatic permits. The permits require controls on disturbed surface dust sources. The COA believes high winds overwhelmed the controls. Figures 25 on page 56 indicates the COA sent a wind alert on the exceedance day to permittees subject to the ordinance. The ordinance includes enforcement provisions. Information about the implementation and enforcement of the controls on the exceedance day was not provided. During the subject high wind event, however, the emissions from the upwind undeveloped lands likely dominated the impacts at South Valley.

Figure 14 on page 39 shows wind speeds exceeded 25 mph in some of the upwind counties to the southeast, on the exceedance day. Figure 20 on page 43 provides the results of a NOAA HYSPLIT Model 24 hours backward trajectory. The COA ran the model with the trajectories ending at 9 PM on April 19, 2018 (0300 UTC on April 20, 2018) at South Valley, with assumed elevations of at 500, 1000, and 1500 meters above ground level. The results show winds could have been near ground level in West Texas prior to reaching South Valley. The distance between West Texas and Albuquerque, however, increases the likelihood any entrained particles would settle out of suspension due to gravity before reaching South Valley.

Areas beyond Bernalillo County are outside the air agency's jurisdiction. The four Tribal Pueblos, and federal lands in Bernalillo County are also outside the air agency's jurisdiction. The air agency is not required to address the reasonably controllable criterion for sources outside its jurisdiction, 40 CFR 50.14(b)(8)(vii).

Based on the limited scope of potential anthropogenic upwind sources, the controls on any upwind sources within the COA jurisdiction, and the likely dominating emissions from high winds on upwind undeveloped arid lands, the demonstration sufficiently showed that potentially contributing anthropogenic activities were reasonably controlled on the exceedance day.

JULY 11, 2018

The exceedance occurred on July 11, 2018, hereafter referred to as the "exceedance day," at a monitoring site in Bernalillo County. The monitor and exceedance are:

Site Name	Monitor AQS ID	Exceedance, Measurement
South Valley	35-001-0029-81102-3	200 $\mu g/m^3$

JULY 11, 2018, EXCEEDANCE DAY, Clear Causal Relationship.
In the demonstration for the July 11, 2018, exceedance, COA states the event "originated from the southeast …, traveling across the east and south-eastern counties of New Mexico, and directly impacted the South Valley-2ZV monitoring site." The wind incident was not forecast by the National Weather Service (NWS).

Figures 1 and 7 on pages 12 and 21 shows the PM_{10} measurements from the South Valley monitor site on the exceedance day. The graphs also show NWS wind speed data. Both wind and PM_{10} data are in minute intervals. The graphs indicate that between about 3:30 PM (at 925 minutes) and 5:15 PM (at 1037 minutes) wind speeds generally exceeded 25 mph.

Tables on pages 13, 14, and 15, provide Albuquerque airport weather data on the exceedance day. The airport is about 2.5 miles northeast of South Valley. The winds at the airport were mild in the morning and started to elevate about 3 PM. Wind speeds exceeded 25 mph from about 3:30 PM to 5:30 PM. During this period, the winds were from the south southeast, gusts reached 46 mph, and weather types included blowing dust in the vicinity (Weather Type VCBL:5 DU:5) and smoke and haze (Weather Type FU HZ). Also, during this period, visibility was reduced from 10 to 4 miles. The overall weather type for the exceedance day was "thunderstorm," "haze," and "dust" (Weather Type TS HZ DU).

On the exceedance day, winds at the Double Eagle airport were mostly mild in the morning. Winds started to elevate about 1:30 PM. From about 5 PM to 6 PM, the winds exceeded 25 mph. During this time, the winds were from the southeast and gusts reached 34 mph. The airport is about 12 miles northwest of South Valley.

On the exceedance day, AQS data shows the hourly wind speeds at the Del Norte monitor site were mostly mild. Between 3 PM and 5 PM, winds were elevated and reached a peak of 17 mph. Del Norte is about 9 miles north northeast of the South Valley site. Exceedance day 24 hours measurements from the Del Norte and Jefferson PM_{10} monitors were below the monitor averages: Del Norte 16 $\mu g/m^3$ (average 18 $\mu g/m^3$), and Jefferson 22 $\mu g/m^3$ (average 27 $\mu g/m^3$).

Figure 3 on page 17 shows the hourly PM_{10} measurements at South Valley on the exceedance day. The PM_{10} measurements correlate with elevated winds shown in Figure 1.

Figure 13 on page 27 graphs the hourly PM_{10} measurements from Del Norte 2ZM, Jefferson 2ZS, and South Valley 2ZV. The South Valley data is graphed using a different unit of measure on the vertical axis than that used on the Del Norte and Jefferson data. The graph does, however, show that the PM_{10} measurements at the sites correlated somewhat with elevated winds measured at the area airports.

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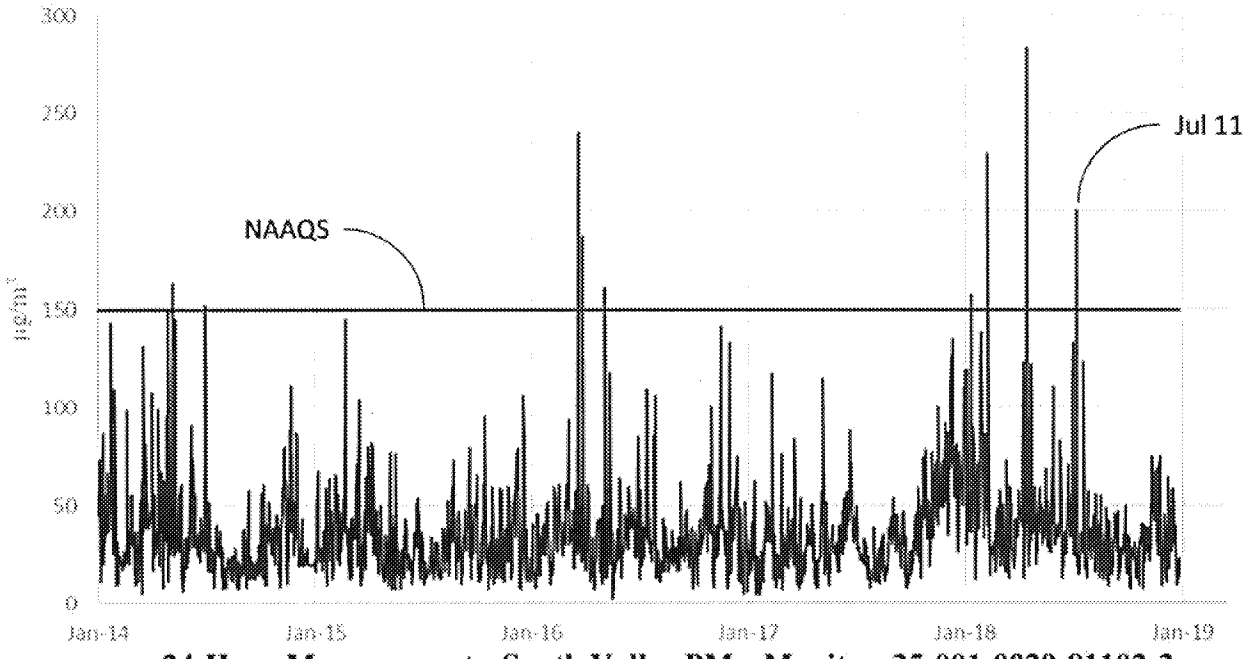
There are independent weather reports, evidence of blowing dust, and wind data which showed that on the exceedance day the area experienced a wind incident with entrained particulate matter. The demonstration showed that elevated hourly PM_{10} measurements at the monitor correlated with elevated wind speeds measured on the exceedance day. The likelihood that anthropogenic sources caused the exceedance are discussed below in the Not Reasonably Controllable criterion. Based on the EPA review of the clear causal relationship criterion using a weight of evidence approach, the COA sufficiently showed that a high wind dust event clearly caused the PM_{10} exceedance at the monitor on the exceedance day.

JULY 11, 2018, EXCEEDANCE DAY, Analyses comparing event concentrations to other concentrations at the monitor.

The graph below reflects the 24-hour measurements at the monitor from 2014 to 2019. The site measurements for the days surrounding the exceedance day did not approach the NAAQS level. The measurement on the exceedance day are above the 95th percentile of historical site data.



24-Hour Measurements, South Valley PM_{10} Monitor, 35-001-0029-81102-3

Based on the analyses and statistics, the comparison of the exceedances to the historical concentrations of PM_{10} at the monitor indicates a deviation from normal or typical concentrations occurred on the exceedance day. This supports the clear causal relationship between the exceedance and the wind incident on the exceedance day.

JULY 11, 2018, EXCEEDANCE DAY, Not reasonably controllable or preventable.

See discussion above for additional information on the requirements for the EPA review and analysis of this overall criteria.

Reasonably Controllable, Anthropogenic Sources – The 25-mph high wind threshold is the minimum wind speed capable of overwhelming reasonable controls on anthropogenic sources. As discussed previously for the clear causal criterion, area hourly wind speeds exceeded the threshold for more than an hour on the exceedance day. These elevated winds were from the south southeast.

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About 1 mile of developed land exists to the east of South Valley. Beyond that, further to the east, is the Kirtland military base and undeveloped arid lands managed by the National Forest Service. To the southeast is the Kirtland military base, undeveloped arid land in Bernalillo County, and Isleta Pueblo lands. About 4 miles of developed land exists to the south of South Valley. Beyond that, further to the south, is a National Wildlife Refuge and Isleta Pueblo lands.

The COA states that anthropogenic sources near South Valley "are predominately due to residential and small commercial properties with little to no vegetative cover and with the small commercial properties having no soil stabilization such as asphalt or cement paving. Other areas that also impact the area are due to off road vehicle usage to the east…"

Since 2008, there has been a fugitive dust control ordinance in effect in the area. On the exceedance day, there were 2 sites in the South Valley area with fugitive dust construction permits. There were 21 upwind sites with fugitive dust programmatic permits. The permits require controls on disturbed surface dust sources. The COA believes high winds overwhelmed the controls. The ordinance includes enforcement provisions. Information about the implementation and enforcement of the controls on the exceedance day was not provided. During the subject high wind event, however, the emissions from the upwind undeveloped lands likely dominated the impacts at South Valley.

Figure 13 on page 37 indicates wind speeds met or exceeded 25 mph in a few of the counties to the southeast of Bernalillo County, on the exceedance day. Areas beyond Bernalillo County are outside the air agency's jurisdiction. The four Tribal Pueblos, and federal lands in Bernalillo County are also outside the air agency's jurisdiction. The air agency is not required to address the reasonably controllable criterion for sources outside its jurisdiction, 40 CFR 50.14(b)(8)(vii).

Based on the limited scope of potential anthropogenic upwind sources, the controls on any upwind sources within the COA jurisdiction, and the likely dominating emissions from high winds on upwind undeveloped arid lands, the demonstration sufficiently showed that potentially contributing anthropogenic activities were reasonably controlled on the exceedance day.